

WYVERN GUIDANCE DOCUMENT

Circling Approach Guidance (REVISION 1, SEPTEMBER 2023)

The following guidance is provided to aid operators in assessing risk acceptability in conducting a circling approach to a given airport/runway. This guidance is offered to enable robust hazard identification while providing a comprehensive list of potential constraints/mitigations to lower risk. Ultimately, the guidance is designed to stimulate critical thinking in a purposeful risk assessment, recommended to be conducted well ahead of any flights (Note: this assessment is foundational and is intended to assess risk acceptability at given airports based on approaches available. Although complementary to a FRAT, operators should consider a broader safety assessment team to achieve consensus on risk acceptability with stipulated/published procedures and limitations). Operators are encouraged to conduct this detailed risk assessment to determine if the residual risk – that is, the risk that remains after mitigations are in place – is sufficiently low to be accepted by the organization’s Accountable Executive for the SMS.

The following are just some of the hazards or hazard sources that should be considered in the analysis:

1. **Dynamic weather:** inability to gain situational awareness of changing conditions.
2. **Night/dark conditions:** Fewer or confusing visual cues, cultural lighting effects and depth perception challenges.
3. **Terrain:** inability to gain/maintain awareness of terrain features.
4. **Obstacles:** unlit and/or insufficient awareness to close-in obstacles.
5. **Runway lighting:** insufficient runway lighting, absence of PAPI/VASI.
6. **Cockpit field of view limitations:** difficulty maintaining sight of landing runway throughout circling maneuver.

7. **Adverse circling direction:** may not coincide with seating position of pilot flying and/or dictated by approach procedure (i.e. “Circling [cardinal direction] NA at night”).
8. **Approach instability:** increased potential for altitude, speed and positional excursions.
9. **Training deficiencies:** unrealistic scenarios impede competence and readiness for infrequent circling approaches (with missed approach) at more challenging airports.
10. **Adverse winds:** compounds ability to circle within appropriate aircraft category radii and arrive at a sufficiently stable landing runway extended centerline.
11. **Aircraft equipage:** lack of HUD/flight path marker, absence of geo-position displays and insufficient/absent low airspeed/high AOA alerting significantly elevates crew workload.
12. **Missed approach:** high potential for task saturation during circle/close-in go-around to rejoin published missed approach.

The following are provided as consideration in developing procedures, limitations and active risk controls for the conduct of circling approaches:

1. On-airport weather reporting resources should provide for frequent ceiling and visibility updates (Note: METAR is updated hourly unless superseded by SPECI). ASOS/AWOS reporting should be fully functional to include winds. Consider establishing weather minima above published for the procedure such as basic VFR minima (1000/3) for day (add 500ft for night). Aircraft should remain on IFR clearance throughout the approach to facilitate missed approach option.
2. Visual glideslope lighting (PAPI/VASI) required for landing runway. Runway lighting to be high intensity until at least established on final (crews to be familiar with pilot-controlled lighting at non-towered fields or when tower not in operation. Consider [re]activating lights nearing MAP to assure they remain activated throughout approach).

3. Circling to a landing runway with glideslope angle greater than 3.25 degrees should be avoided.
4. Circling should not be conducted if the airport is under NOTAM for obstacle(s) that require additive to approach minima. Consider prohibiting circling if consequential runway lighting is under NOTAM.
5. Airport analysis will specifically look for potential of “black hole” approach environment. Sufficient cultural lighting should be available to maintain aircraft attitude and path by outside visual references.
6. Consider crew currency requirements such as: one aircrew will have flown a day approach to the airport in the six months prior to flying any night circling approach. Crew pairing should include at least one pilot with 500 hours in type/model to execute any circling approach. It is recommended that the approach briefing be developed and tailored specifically for circling maneuver. This includes using available avionic capabilities to aid situational awareness and allow better opportunity for pilot flying to sustain outside scan and pilot monitoring to ensure proper airspeed maintenance and geographical positioning awareness.
7. Circling in a direction opposite the seating position of the pilot flying should be avoided. If the crew pairing doesn’t favor a transfer of control by the FRAT assessment and individual pilot currency (day approach prior to night circle within 6 months at the destination airport), then a circle should not be flown.
8. Consideration should be given to having fully functional (no MEL relief) autopilot and autothrottle systems. To aid in energy management, the autothrottles (if equipped) should be used. Additionally, consider utilizing the autopilot to level the aircraft at MDA and employ the heading function to fly the circle. Autopilot should be disconnected no later than 50 feet below MDA.
9. Hand-flown day visual approaches should be conducted at least twice in any 6-month period. At least two hand-flown visual approaches should be flown during (Level D) simulator recurrent training and can satisfy the 6-month currency requirement.
10. Circling is discouraged if landing runway has greater than 5 kts tailwind component or if gust additive of 10 kts or more is required.

11. A go around from a circling approach should be performed if the aircraft is not aligned with centerline by 300AGL and speed is not captured at Vref (plus any additive) -5/+10. Power should be set to maintain airspeed required (avoid long-dwell at idle power).
12. At least one circling approach in a 12-month period (simulator or actual flight) should be flown to a low approach following the circle maneuver, then joining the published missed approach procedure. Aircraft control to ATC ACS standards should be demonstrated.
13. Circling approach should be prohibited if the crew day is greater than 10 hours. Night circling should be prohibited if on 3rd leg or more for the crew day (a “crew day” in this context refers to the first dispatch of either crewmember to final landing).
14. Some aircraft have option (generally thru ASC) to limit max landing weight to shift to lower approach speed category. Regardless, consider using the higher category minima if other, more conservative weather minima are not mandated.
15. Synthetic vision capability should be utilized to the maximum extent practicable to maintain situational awareness. Crews should have proficiency in using synthetic vision and avoid over-reliance on the system or interruption of visual contact with runway environment during the circling maneuver.